

WHAT IS CLAIMED IS:

1. A process for converting sulfur compounds in a hydrocarbon stream comprising:

feeding a hydrocarbon stream to a prewash section containing alkali to convert
5 hydrogen sulfide to a sulfide salt;

continuously withdrawing a spent alkaline stream containing mercaptides from
said prewash section;

continuously adding a regenerated alkaline stream to said prewash section;

withdrawing a prewashed hydrocarbon stream from said prewash section; and

10 feeding said prewashed hydrocarbon stream to an extractor section discrete from
said prewash section, said extractor section containing alkali.

2. The process of claim 1 wherein a part of said spent alkaline stream is
recirculated to said prewash section and another part of said spent alkaline stream is
removed from said spent alkaline stream.

15 3. The process of claim 2 wherein said regenerated alkaline stream is added to
said spent alkaline stream.

4. The process of claim 2 wherein water is added to said spent alkaline stream.

5. The process of claim 2 wherein said hydrocarbon stream is fed to said spent
alkaline stream.

6. The process of claim 5 wherein said spent alkaline stream with the hydrocarbon stream added thereto undergoes a pressure drop before feeding to the prewash section.

7. The process of claim 1 wherein said extractor section has a greater
5 concentration of alkali than said prewash section.

8. The process of claim 1 wherein said alkali is caustic.

9. A process for converting sulfur compounds in a hydrocarbon stream comprising:

10 feeding a hydrocarbon stream to a prewash section containing alkali to convert
hydrogen sulfide to a sulfide salt;
withdrawing hydrocarbons from said prewash section;
withdrawing a recycle alkaline stream containing the sulfide salt from said
prewash section;
15 withdrawing a spent alkaline stream containing the sulfide salt from said
alkaline stream;
adding a regenerated alkaline stream, containing a lower concentration of sulfide
salt than said spent alkaline stream, to said recycle alkaline stream; and
recycling said recycle alkaline stream to said prewash section.

10. The process of claim 9 wherein said hydrocarbon stream is added to said
20 recycle alkaline stream.

11. The process of claim 9 wherein water is added to said recycle alkaline stream.

12. The process of claim 10 wherein the recycle alkaline stream undergoes a pressure drop after the hydrocarbon stream is added thereto.

5 13. The process of claim 9 wherein the alkali is caustic.

14. An apparatus for contacting a hydrocarbon containing sulfur compounds with alkali comprising:

a vessel for contacting the hydrocarbon with the alkali;

a hydrocarbon removal conduit with an inlet in communication with the vessel

10 for withdrawing the hydrocarbon from the vessel;

an alkaline recycle conduit with an inlet in communication with the vessel for

withdrawing the alkali from the vessel and an outlet in communication with the vessel;

an alkaline addition line in communication with said alkaline recycle conduit;

15 and

an alkaline removal line in communication with said alkaline recycle conduit.

15. The apparatus of claim 14 wherein a water addition line is in communication with the alkaline recycle conduit.

16. The apparatus of claim 14 wherein a hydrocarbon feed line is in
20 communication with the alkaline recycle conduit.

17. The apparatus of claim 14 wherein an outlet of a hydrocarbon removal conduit is in communication with an extractor section containing alkali.

18. The apparatus of claim 17 wherein said vessel includes a coalescer below the inlet to the hydrocarbon removal conduit.

5 19. The apparatus of claim 18 wherein the outlet to the alkaline recycle conduit is below said coalescer.

20. The apparatus of claim 19 wherein the inlet to the alkaline recycle conduit is below said outlet to the alkaline recycle conduit.